Claims

What is claimed is:

1. Apparatus for implementing very high density signal probing of a printed circuit board having a pad pattern connected to signals of interest, said apparatus comprising:

a metal plate including a plurality of through holes arranged in a predefined pattern; said predefined pattern corresponding to the pad pattern on the printed circuit board;

at least one signal module; each said signal module being inserted within a selected one of said through holes; each said signal module defining a coaxial connector for electrical mating engagement with a coaxial cable connector and having an embedded resistor; and

at least one power/ground module; each said power/ground module inserted within a selected one of said through holes; each said power/ground module containing a high dielectric constant material between an outer conductor and a center conductor defining a capacitor; said capacitor providing a low impedance path between said metal plate and a power or ground pad of the printed circuit board.

2. Apparatus for implementing very high density signal probing of a printed circuit board as recited in claim 1 includes a pad-on-pad connector connected between each said signal module and each said power/ground module and corresponding pads on the printed circuit board.

3. Apparatus for implementing very high density signal probing of a printed circuit board as recited in claim 1 wherein each said signal module includes an outer conductor made of an electrically conductive material arranged for mounting said signal module to a mating coaxial cable connector.

4. Apparatus for implementing very high density signal probing of a printed circuit board as recited in claim 3 wherein each said signal module further includes a base conductor and a central conductor contained within said outer conductor; said central conductor received in mating engagement with a central conductor of said mating coaxial cable connector and electrically insulated from said outer conductor; and said base conductor electrically coupled to a signal pad on the printed circuit board.

5. Apparatus for implementing very high density signal probing of a printed circuit board as recited in claim 4 wherein said embedded resistor is located between said base conductor and said central conductor for minimizing the loading on the signal to be monitored.

6. Apparatus for implementing very high density signal probing of a printed circuit board as recited in claim 4 wherein outer conductor makes electrical contact with said metal plate.

7. Apparatus for implementing very high density signal probing of a printed circuit board as recited in claim 1 wherein said center conductor of each said power/ground includes a base portion electrically coupled to said power or ground pad on the printed circuit board, and an elongated conductor portion supported by said base portion extending within said outer conductor.

8. Apparatus for implementing very high density signal probing of a printed circuit board as recited in claim 7 wherein said high dielectric constant material extends around said base portion and said elongated conductor portion within said outer conductor defining said capacitor.

9. Apparatus for implementing very high density signal probing of a printed circuit board as recited in claim 7 wherein outer conductor makes electrical contact with said metal plate.

10. Apparatus for implementing very high density signal probing of a printed circuit board as recited in claim 1 wherein said metal plate includes alignment features for alignment with cooperating features of the printed circuit card.

11. A method for implementing very high density signal probing of a printed circuit board having a pad pattern connected to signals of interest, said method comprising the steps of:

providing a metal plate including a plurality of through holes arranged in a predefined pattern; said predefined pattern corresponding to the pad pattern on the printed circuit board;

providing a signal module defining a coaxial connector for electrical mating engagement with a coaxial cable connector and having an embedded resistor;

inserting at least one signal module within a selected one of said through holes;

providing a power/ground module containing a high dielectric constant material between an outer conductor and a center conductor defining a capacitor; and

inserting at least one power/ground module within a selected one of said through holes; said capacitor defined by each said power/ground module providing a low impedance path between said metal plate and a respective power/ground pad of the printed circuit board.

12. A method for implementing very high density signal probing of a printed circuit board as recited in claim 11 includes providing said metal plate with alignment features for alignment with cooperating features of the printed circuit card.

13 A method for implementing very high density signal probing of a printed circuit board as recited in claim 11 includes providing said embedded resistor for minimizing the loading on the signal to be monitored.

14. A method for implementing very high density signal probing of a printed circuit board as recited in claim 13 includes providing said embedded resistor between a base conductor electrically coupled to a signal pad on the printed circuit board and a central conductor electrically coupled to said mating coaxial cable connector.